

CLAIMS

1. A process for producing a poly(arylene sulfide)
by polymerizing a sulfur source and a dihalo-aromatic
5 compound in the presence of an alkali metal hydroxide in an
organic amide solvent, which comprises washing a polymer
obtained by the polymerization with a hydrophilic organic
solvent containing water in a proportion of 1 to 30% by
weight, thereby collecting a purified polymer, the content
10 of nitrogen contained in an extract extracted by a mixed
solvent containing 40% by weight of acetonitrile and 60% by
weight of water from the purified polymer is at most 50 ppm
on the basis of the weight of the polymer.
- 15 2. The production process according to claim 1,
wherein the washing with the hydrophilic organic solvent
containing water is repeated at least twice.
- 20 3. The production process according to claim 1,
wherein the hydrophilic organic solvent is a ketone,
nitrile, organic amide, alcohol or a mixture of at least
two solvents thereof.
- 25 4. The production process according to claim 1,
wherein the hydrophilic organic solvent containing water is
acetone containing water in a proportion of 1 to 20% by
weight.

5. The production process according to claim 1, wherein the hydrophilic organic solvent containing water is acetone containing water in a proportion of not lower than 2% by weight, but lower than 20% by weight.

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6. The production process according to claim 1, wherein a purified polymer, the content of nitrogen contained in the extract extracted by the mixed solvent containing 40% by weight of acetonitrile and 60% by weight
10 of water from the purified polymer is at most 25 ppm on the basis of the weight of the polymer, is collected.

7. The production process according to claim 1, wherein a purified polymer, the content of a low-molecular
15 weight component extracted by Soxhlet extraction with chloroform from the purified polymer is at most 3.0% by weight, is collected.

8. The production process according to claim 1,
20 wherein a purified polymer having a melt viscosity of 1 to 3,000 Pa·s as measured at a temperature of 310°C and a shear rate of $1,216 \text{ sec}^{-1}$ is collected.

9. The production process according to claim 1,
25 wherein the production process of the poly(arylene sulfide) by polymerizing the sulfur source and the dihalo-aromatic compound in the presence of the alkali metal hydroxide in

the organic amide solvent comprises the respective steps of:

- (1) a dehydration step of heating and reacting a mixture containing an organic amide solvent, an alkali metal hydrosulfide and the alkali metal hydroxide in a proportion of 0.95 to 1.05 mol per mol of the alkali metal hydrosulfide to discharge at least a part of a distillate containing water from the interior of the system containing the mixture to the exterior of the system,
- (2) a charging step of adding an alkali metal hydroxide and water to the mixture remaining in the system after the dehydration step, as needed, in such a manner that 1.00 to 1.09 mol of the alkali metal hydroxide and 0.5 to 2.0 mol of water are present per mol of a sulfur source (hereinafter referred to as "charged sulfur source") including the alkali metal hydrosulfide, and
- (3) a first-stage polymerization step of adding the dihalo-aromatic compound to the mixture to subject the sulfur source and the dihalo-aromatic compound to a polymerization reaction at a temperature of 170 to 270°C in the organic amide solvent, thereby forming a prepolymer that a conversion of the dihalo-aromatic compound is 50 to 98%, and
- (4) a second-stage polymerization step of controlling the amount of water in the reaction system after the first-stage polymerization step so as to bring about a state that water exists in a proportion of 2.0 to 10 mol per mol of

the charged sulfur source, and heating the reaction system at 245 to 290°C, thereby continuing the polymerization reaction.

5 10. A poly(arylene sulfide) obtained by polymerizing a sulfur source and a dihalo-aromatic compound in the presence of an alkali metal hydroxide in an organic amide solvent, wherein the content of nitrogen contained in an extract extracted by a mixed solvent containing 40% by
10 weight of acetonitrile and 60% by weight of water from the polymer is at most 50 ppm on the basis of the weight of the polymer.

 11. The poly(arylene sulfide) according to claim 10,
15 wherein the content of nitrogen contained in the extract extracted by the mixed solvent containing 40% by weight of acetonitrile and 60% by weight of water from the polymer is at most 25 ppm on the basis of the weight of the polymer.

20 12. The poly(arylene sulfide) according to claim 10, wherein the content of a low-molecular weight component extracted by Soxhlet extraction with chloroform from the polymer is at most 3.0% by weight.

25 13. The poly(arylene sulfide) according to claim 10, wherein the melt viscosity thereof is 1 to 3,000 Pa·s as measured at a temperature of 310°C and a shear rate of

1,216 sec⁻¹.